

IN THE CLAIMS:

1. (Currently Amended) A method of manufacturing a carbon nanotube semiconductor device, comprising:

dropping a solution containing a carbon nanotube with conductor property and a carbon nanotube with semiconductor property onto a first electrode, a second electrode, and a region between the first electrode and the second electrode and overlapped with a third electrode through the insulating film while an alternating current voltage is applied between the first electrode and the second electrode which are located over an insulating film over the third electrode;

controlling the carbon nanotubes in a predetermined alignment direction; and
applying a direct current voltage between the first electrode and the second electrode to remove the carbon nanotube with conductor property,

wherein the first electrode is connected with the second electrode through the carbon nanotube with semiconductor property in the carbon nanotube semiconductor device.

2. (Original) A method of manufacturing a carbon nanotube semiconductor device according to claim 1, further comprising rubbing a surface of the first electrode, a surface of the second electrode, and a surface of the insulating film between the first electrode and the second electrode overlapped with the third electrode.

3. (Original) A method of manufacturing a carbon nanotube semiconductor device according to claim 1, further comprising:

forming an alignment film over the first electrode, the second electrode, and the insulating film between the first electrode and the second electrode; and rubbing a surface of the alignment film.

4. (Currently Amended) A method of manufacturing a carbon nanotube semiconductor device, comprising:

dropping a solution containing a carbon nanotube with conductor property and a carbon nanotube with semiconductor property onto a first electrode, a second electrode, and a region between the first electrode and the second electrode;

controlling the carbon nanotubes in a predetermined alignment direction [[10]] while an alternating current voltage is applied between the first electrode and the second electrode;

applying a direct current voltage between the first electrode and the second electrode to remove the carbon nanotube with conductor property;

forming an insulating film so as to cover the carbon nanotube with semiconductor property; and

forming a third electrode in a region overlapped with the carbon nanotube with semiconductor property through the insulating film,

wherein the first electrode is connected with the second electrode through the carbon nanotube with semiconductor property in the carbon nanotube semiconductor device.

5. (Withdrawn) A method of manufacturing a carbon nanotube semiconductor device according to claim 4, further comprising:

forming an alignment film over the first electrode, the second electrode, and the region between the first electrode and the second electrode; and

rubbing a surface of the alignment film.

6. (Original) A method of manufacturing a carbon nanotube semiconductor device according to claims 1, wherein a frequency of the alternating current voltage is equal to or larger than 1 MHz.

7. (Withdrawn) A method of manufacturing a carbon nanotube semiconductor device according to claims 4, wherein a frequency of the alternating current voltage is equal to or larger than 1 MHz.

8. (Original) A method of manufacturing a carbon nanotube semiconductor device according to claims 1, wherein a concentration of carbon nanotubes contained in the carbon nanotube solution is equal to or lower than 0.0005%.

9. (Withdrawn) A method of manufacturing a carbon nanotube semiconductor device according to claims 4, wherein a concentration of carbon nanotubes contained in the carbon nanotube solution is equal to or lower than 0.0005%.

10. (Original) A method of manufacturing a carbon nanotube semiconductor device, comprising:

forming a gate electrode over a substrate;

forming a gate insulating film over the gate electrode and the substrate,

forming a source electrode and a drain electrode over the gate insulating film;

applying a carbon nanotube solution comprising a solvent, a carbon nanotube having conductor property and a carbon nanotube having semiconductor property over the source electrode, the drain electrode and a region of the gate insulating film between the source electrode and the drain electrode and overlapped with the gate electrode;

applying an alternating current voltage between the source electrode and the drain electrode in order to control the alignment direction of the carbon nanotube;

evaporating the solvent for forming a carbon nanotube layer connecting the source electrode and the drain electrode; and

applying a direct current voltage between the source electrode and the drain electrode in order to remove the carbon nanotube with conductor property.

11. (Original) A method of manufacturing a carbon nanotube semiconductor device according to claim 10, further comprising

forming an alignment film so as to cover the source electrode, the drain electrode, and the gate insulating film between the source electrode and the drain electrode; and

rubbing a surface of the alignment film.

12. (Withdrawn) A method of manufacturing a carbon nanotube semiconductor device, comprising:

forming a source electrode and a drain electrode over a substrate;

applying a carbon nanotube solution comprising a solvent, a carbon nanotube having conductor property and a carbon nanotube having semiconductor property over the source

electrode, the drain electrode and a region between the source electrode and the drain electrode;

applying an alternating current voltage between the source electrode and the drain electrode in order to control the alignment direction of the carbon nanotube;

evaporating the solvent for forming a carbon nanotube layer connecting the source electrode and the drain electrode;

applying a direct current voltage between the source electrode and the drain electrode in order to remove the carbon nanotube having conductor property;

forming a gate insulating film over the carbon nanotube layer comprising the carbon nanotube having semiconductor property;

forming a gate electrode over the carbon nanotube layer through the gate insulating film.

13. (Withdrawn) A method of manufacturing a carbon nanotube semiconductor device according to claim 12, further comprising:

forming an alignment film so as to cover the first electrode, the second : electrode, and the region between the source electrode and the drain electrode; and

rubbing a surface of the alignment film.

14. (Original) A method of manufacturing a carbon nanotube semiconductor device according to claims 10, wherein a frequency of the alternating current voltage is equal to or larger than 1 MHz.

15. (Withdrawn) A method of manufacturing a carbon nanotube semiconductor device according to claims 12, wherein a frequency of the alternating current voltage is equal to or larger than 1 MHz.

16. (Original) A method of manufacturing a carbon nanotube semiconductor device according to claims 10, wherein a concentration of the carbon nanotube contained in the carbon nanotube solution is equal to or lower than 0.0005%.

17. (Withdrawn) A method of manufacturing a carbon nanotube semiconductor device according to claims 12, wherein a concentration of the carbon nanotube contained in the carbon nanotube solution is equal to or lower than 0.0005%.

18. (Currently Amended) A method of manufacturing a carbon nanotube semiconductor device, comprising:

providing a first electrode and a second electrode over an insulating surface;

applying a solution containing ~~carbon nanotubes~~ a carbon nanotube with conductor property and a carbon nanotube with semiconductor property over the first and second electrodes and a region of the insulating surface between the first and second electrodes; ~~and~~

controlling the carbon nanotubes in a predetermined alignment direction; and

applying a direct current voltage between the first and second electrodes, ~~thereby connecting the first and second electrodes through at least one of the carbon nanotubes in order to remove the carbon nanotube with a conductor property,~~

wherein a third electrode is located adjacent to and overlapped with the carbon nanotube connecting the first and second electrodes with an insulating film therebetween.